

## Report of the Biological Survey of Mutsu Bay.

### 1. General Outline of the Biological Survey of Mutsu Bay.\*

BY

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Mutsu Bay covers  $140^{\circ}40'$ — $141^{\circ}15'E$  of longitude and  $40^{\circ}50'$ — $41^{\circ}17'N$  of latitude and lies at the extreme northern end of the main island of Japan, Hondo. From the middle of the coast Natsudomari Peninsula projects halfway into the bay, thus dividing it into two divisions: Noheji Bay on the east and Aomori Bay on the west. The distance between the east and the west coast is thirty-two miles, between the south and the north twenty-eight miles in the widest region and eight miles in the narrowest. The northwestern corner of the bay opens directly into Tsugaru Strait and through this opening faces Hokkaido Island.

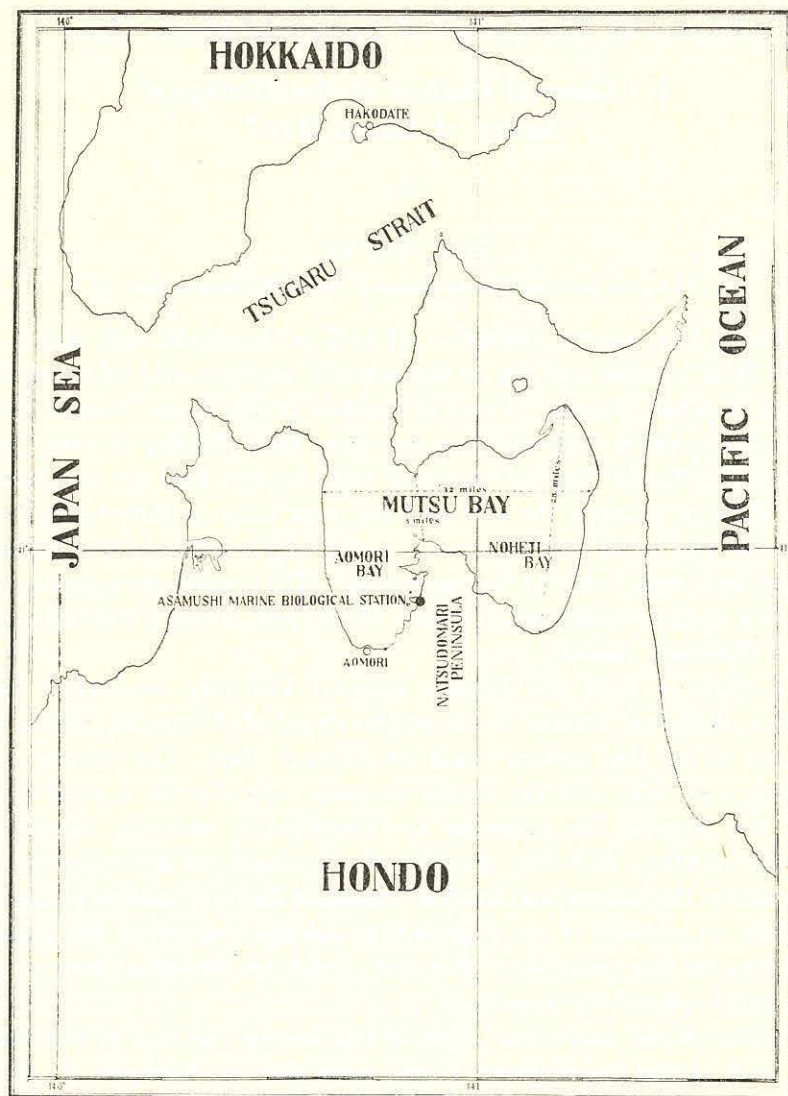
In July of 1924 the Tohoku Imperial Univesity established the Marine Biological Station in the neighborhood of Asamushi, which is located along the eastern coast of Aomori Bay. The number of investigators who visit the station increases annually at a rapid rate and the demand for materials for investigation naturally increases equally rapidly. However, we were often embarrassed about supplying adequately the amount and kinds of materials for those zealous research workers on account of our imperfect knowledge concerning the fauna and flora in this great bay. For this reason the biological survey of this bay became very important.

Although our immediate object of this survey was thus to facilitate the work of the investigators, at the same time we had several other reasons, some of which are stated below:

1) Since the bay has a narrow outlet to the bigger sea the survey can be accomplished relatively easily and concisely.

\* A contribution from the Marine Biological Station, Asamushi, Aomori-Ken.





Map of Mutsu Bay.

2) On account of the location of the marine biological station the survey can be greatly facilitated and accomplished with less expense.

3) Since Mutsu Bay is in contact with both the Pacific Ocean and the Japan Sea through Tsugaru Strait an adequate knowledge concerning the distribution of the fauna and flora may bring out some important data in the field of bio-geography.

4) Inasmuch as it is our long standing wish to make a similar survey of the entire northeastern coast of Japan, the present small undertaking now in progress will give us valuable experience for such future work on a greater scale.

The present biological survey of Mutsu Bay was made possible by an adequate financial grant given by the Saito Ho-on Kai (The Saito Gratitude Foundation) which was established by the late ZENEMON SAITO Esq. three years ago for the promotion of scientific research and for social and industrial improvement. Taking this opportunity, we wish to acknowledge our deep obligation to the Foundation for this generous support.

This survey was begun last April and was carried on actively till the end of September. In carrying out the survey we divided the work into three large divisions and divided our responsibilities respectively:

Professor SANJI HOZAWA (Tohoku Imperial University) in charge of fauna,

Professor MASATO TAHARA (Tohoku Imperial University) in charge of flora,

Assistant Professor SEIJI KOKUBO (Asamushi Marine Biological Station) in charge of plankton organisms.

It was agreed that each be entirely responsible for his respective field, as, for instance, in the collection of specimens, the choice of collection stations, the distribution of materials to the specialists, etc. It is also intended to publish fuller reports concerning the survey in general in the near future.

The number of specimens thus far collected is quite large and it is self evident that only by the cooperation of many specialists the difficult task of identification of known species, of description of new species, etc. or, in short, the object of the present undertaking, can be accomplished. In this connection we are very happy to mention



that biological friends showed a great interest and willingly accepted our wish in cooperating actively.

With deepest appreciation and gratification we announce the names of collaborators together with their field of responsibilities:

TORU ABE, Rigakushi, Tokyo Imperial University. *Protozoa*.

SEITARO GOTO, Rigakuhakushi, Tokyo Imperial University.

*Crinoidea, Echinoidea, Asteroidea*.

SHOGO HARUYAMA, Rigakushi, Kyoto Imperial University.

*Cirripedia*.

TOYOJI HIKIDA, Hokkaido Imperial University. *Pisces*.

SANJI HOZAWA, Rigakuhakushi, Tohoku Imperial University.

*Porifera*.

AKIRA IZUKA, Rigakuhakushi, The Peers' School, Tokyo.

*Polycheta*.

NAGAMICHI KURODA, Rigakuhakushi, Tokyo. *Aves*.

HIKOSHICHIRO MATSUMOTO, Rigakuhakushi, Tohoku Imperial University. *Ophiuroidea*.

G. E. NICHOLLS, University of Western Australia. *Amphipoda*,

*Isopoda*.

ASAJIRO OKA, Rigakuhakushi, Tokyo Higher Normal School.

*Tunicata*.

YAICHIRO OKADA, Tokyo Higher Normal School. *Polyzoa, Chaetognatha*.

HIROSHI OSHIMA, Rigakuhakushi, Kyushu Imperial University.

*Holothurioidea*.

MADOKA SASAKI, Rigakuhakushi, Hokkaido Imperial University.

*Cephalopoda*.

SHUNICHI TAKATSUKI, Rigakushi, Asamushi Marine Biological Station of the Tohoku Imperial University. *Gastropoda, Lamelli-*

*branchiata, Scaphopoda*.

TORU UCHIDA, Rigakushi, Tokyo Imperial University. *Calenterata*.

YU YOKOYA, Suisangakushi, Tokyo Imperial University. *Brachiura*.

We trust that before long the materials which are not yet assigned will be also in the hands of specialists.

In preparing the reports it was agreed by all investigators concerned that even species well known to science, if they are important material

for general research purpose and if, at the same time access to the original papers is difficult, may be fully described or even illustrated in colors. We may also add that as far as possible the reports will appear in the present journal "The Science Reports, Series IV," whenever they are ready to be printed, under one common title, "Report of the Biological Survey of Mutsu Bay", accompanied by a subtitle which indicates the nature of the particular research by each investigator on whom the entire responsibility for the given report rests.

We feel that it is our pleasant duty to make a special acknowledgement here for our appreciation to the following gentlemen: to Professor SEITARO GOTO of Tokyo Imperial University and to Professor AKIRA IZUKA of the Peers' School for valuable advice given in making out a general plan and for active scientific cooperation from the beginning of the enterprise, and to Professor SHINKISHI HATAI, Director of the Asamushi Marine Biological Station, in permitting us to use the facilities of the entire laboratory.

Finally, we wish to add that this biological survey of Mutsu Bay will be continued in the future till the object is adequately accomplished.

December 8, 1926.